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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/957,032	09/21/2001	Masayoshi Shimizu	826.1751	4255

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EXAMINER

TUCKER, WESLEY J

ART UNIT	PAPER NUMBER
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2624

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10/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/957,032	SHIMIZU, MASAYOSHI	
	Examiner	Art Unit	
	Wes Tucker	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 14, 15, 17-19 and 32-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 15, 17-19 and 32-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's response filed August 14th 2007 has been entered and made of record.

2. Applicant has amended claims 1, 14, 15, 17, 19 and 32-36. Claims 2-13, 16, 20-24 and 27-31 have been withdrawn or cancelled. Claims 1, 14, 15, 17-19 and 32-37 remain pending.

3. Applicant's remarks in view of the newly presented amendments have been fully considered but are not found persuasive for at least the following reasons:

Applicant argues that the reference to Fuss does not teach the use of tone information in the dividing step of claim 1. Examiner disagrees. Fuss teaches using luminance information in dividing and calculating information for image portions. Applicant argues that luminance information of the pixels does not constitute tone information. Examiner submits that luminance information is indeed part of the tone information for digital images. Indeed as disclosed by Fuss, images are received in RGB space and converted to luminance chrominance space. Luminance is directed to the lightness or gray level value of the pixels and the chrominance element describes the color value of the pixels. Both luminance and chrominance describe tone. Tone is a general term used to describe both color and lightness of a pixel. Therefore both chrominance and luminance information are interpreted as tone level information. There can be very little description of actual tone without a luminance value. Simply a

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designation of red for example does not give adequate tone explanation. A lightness or luminance value/level is required to give the pixel tone information. Luminance is far more varied and is directed to the element of tone that is most visible to the human eye. This is why most image enhancement operations are carried out on the luminance component. Operations performed in the luminance channel are the most influential over the visual appearance of the image data. Therefore the luminance data disclosed by Fuss will be interpreted reasonably broadly as tone information. The rejection in view of Fuss is therefore maintained and made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 14, 17-18, 32-33 and 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,581,370 to Fuss et al.

With regard to claim 1, Fuss discloses an image tone level estimating method for estimating a tone level of an image, comprising:

Dividing an original image into a plurality of image sub-areas according to tone level information (column 6, lines 57-67);

Computing a characteristic amount for each of the plurality of sub-areas producing characteristics amounts (column 7, lines 34-65); and

Computing a statistic amount for estimation of the tone color value level of a whole of the original image using the characteristic amounts for each of the plurality of sub-areas (column 8, lines 20-30).

Fuss discloses dividing an image into smaller sub-images and calculating histograms for each of the smaller histograms. The histograms themselves are interpreted as characteristic amounts for each of the sub-areas. Fuss also discloses that a variance is calculated for each histogram. Fuss then also calculates a statistic amount for enhancing tone scale or contrast based on all of the histograms. The luminance values used by Fuss are interpreted as tone level information. In one particular embodiment, Fuss discloses that all of the histograms are combined as a weighted sum to create a global relevant histogram taking into account the histograms that are most relevant according to their variance compared with a global variance value. Both the global histogram and the global variance determined for the weighted combination of histograms are considered statistic amounts.

With regard to claim 14, the discussion of claim 1 applies. Fuss discloses the steps of claim 1 repeated in claim 14 as well as the final step of:

comparing the statistic amount with a predetermined value (column 10, lines 44-67). Fuss discloses that the global histogram calculated from the relevant histograms or

the weighted sum of histograms of the sub-areas is used to determine the global histogram statistical value and that value is compared to a threshold.

Fuss further discloses determining a correcting parameter based on the comparison result; and correcting the original image using the correcting parameter (column 10, lines 44-67). According to the comparison to the threshold mentioned above the histogram is adjusted in a certain way. For example the threshold of 50 is used to determine whether the variance is low, high or moderate. Then the compensation of the histogram is determined, which is mapped to the output.

With regard to claim 17, the discussions of claims 1 and 14 above apply. Fuss discloses an apparatus for performing the steps discussed above (column 11, lines 7-13).

With regard to claim 18, Fuss discloses the apparatus according to claim 17, further comprising a weight coefficient for each area, wherein said statistic amount computation unit computes the statistic amount using the characteristic amount for each area and the weight coefficient for each area (column 8, lines 20-27).

With regard to claim 32, the discussion of claim 1 applies. Fuss discloses a computer readable medium (column 11, lines 7-13).

With regard to claim 33, the discussion of claim 14 applies.

With regard to claims 35, 36 and 37, the discussions of claims 1 and 14 apply.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15, 19 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patents 5,581,370 to Fuss and further in view of Katajamaki et al. ("Image Dependent Gamma Selection Based on Color Palette Equalization and a Simple Lightness Model"). The arguments as to the relevance of Fuss as applied above are incorporated herein.

With regard to claim 15, Fuss discloses using a correcting parameter to generate a corrected image. Fuss further discloses determining a correcting parameter by comparing a computed statistic amount with a predetermined value. Fuss fails to expressly disclose correcting the original image using a plurality of different correcting parameters to generate a plurality of corrected images. It follows that Fuss also fails to expressly disclose determining that the correction result is the corrected image obtained

using the correcting parameter corresponding to the statistic amount closest to a predetermined value.

Katajamaki, on the other hand, discloses generating a plurality of corrected images by correcting an original image using a plurality of different correcting parameters (Katajamaki pg. 303: The reference describes using different values of a variable 'f' (i.e. a plurality of different correcting parameters) to generate a plurality of corrected images from an original image).

Katajamaki further discloses defining a corrected image obtained using a correcting parameter (in this case the optimal value (or correcting parameter) was 12) corresponding to a statistic amount closest to a predetermined value among the computed statistic amounts as an appropriate corrected image (Katajamaki pg. 303: again, the reference describes determining the parameter which produces the optimum result (i.e. defining a corrected image) by minimizing a root mean square error value (i.e. the computed statistic amount which was closest to a predetermined value for the statistic amount).).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Fuss' image correcting method by generating a plural corrected images from plural correcting parameters and then determining the appropriate parameter and corresponding image by minimizing some predetermined error index as taught by Katajamaki. Such a modification would have allowed for an iterative image correction algorithm well suited for computer processing. It also would have allowed for

the option of using a reference image in the image correction process as an ideal image with which corrected images could be compared to.

With regard to claim 19, Fuss discloses an apparatus for performing the method of claim 15 (see Fuss column 11, lines 7-13).

With regard to claims 34, a computer-readable recording medium that stores a program which causes the computer to execute the steps of claims 1 and 14 is essential if the image processing method disclosed in Fuss is to function (see column 11, lines 7-13).

Final Rejection

6. Applicant's amendment necessitated the new grounds of rejection presented in the Office Action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 571-272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wes Tucker

10-25-07



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